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[Search](#)**Calendar****Mon., April 30****2:30 p.m.**Particle Astrophysics Seminar
- 1 West

(NOTE LOCATION)

Speaker: M. Kuhlen, Institute
for Advanced Study Title: The
Via Lactea Simulation - DM
(sub) Structure in the Milky
Way**3:30 p.m.**

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

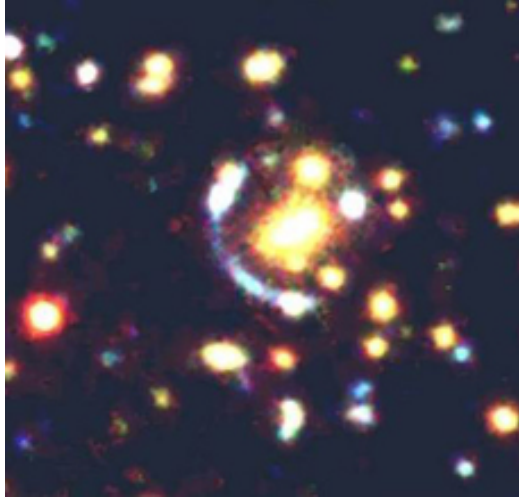
4:00 p.m.All Experimenters' Meeting - 1
West

(NOTE LOCATION)

Special Topic: MI High
Intensity Operation**Tue., May 1****3:30 p.m.**

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO
ACCELERATOR PHYSICS
AND TECHNOLOGY
SEMINAR TODAY**Announcement**Real Time Computing 2007 will
be held at Fermilab on April 29
– May 4, 2007[Click here](#) for more
information.[Click here](#) for NALCAL,
a weekly calendar with links
to additional information.**Weather****Partly Cloudy 77°/57°**[Extended Forecast](#)[Weather at Fermilab](#)**Current Security Status**[Secon Level 3](#)**Wilson Hall Cafe****Feature****Reconstructing the universe,
piece by piece**

The blue arc has been lensed, making it appear much closer than it actually is.

Each Tuesday morning, a small group of particle physicists and astrophysicists gathers on the 6th floor of Wilson Hall to discuss progress in piecing together the structure of the universe. The group, called "Fermi Clusters," uses a telescope at Apache Point Observatory, New Mexico, and images and catalogs from the [Sloan Digital Sky Survey](#) to get a better view. Recently, the group has discussed exploring how sound waves from the infant universe confirm gravity's role in its formation, and examining 11-billion-year-old stars through gravitational lensing.

"Lensing occurs when an object in space is so massive that its gravity bends distant light," said astrophysicist Huan Lin. Lensed light often appears much brighter than it would otherwise. Last November, group members announced the discovery of a dramatically lensed galaxy 11 billion light years away. Since it takes 11 billion years for that light to reach Earth, the discovery allowed researchers to observe stars in the early universe.

With his work in sound waves, Juan Estrada studies patterns in the arrangement of galaxy clusters and compares them with patterns in sound waves from the universe's first million years. These sound waves -- caused by interactions between photons and matter in

Safety Tip of the Week**Electrical safety reminder**

The primary cause of electrical incidents at DOE's Office of Science facilities has been contact with components that were not identified as being energized. One example: drilling into wiring hidden beneath walls or floors.

In a recent conference call with DOE field managers, the Chief Operating Officer for the Office of Science, George Malosh, remarked that electrical work continues to be a primary hazard. Looking at the causes of these accidents will help us to prevent the mistakes involved.

In the past 16 months, Office of Science facilities have submitted 251 reports to DOE's Occurrence Reporting and Processing System (ORPS). Of these, 41 were associated with electrical hazards. About two-thirds involved 120 VAC circuits while the remainder fell in the 208-480 VAC range. In 23 of the incidents, participants were unaware that energized components were present. This included wiring buried beneath walls and floors as well as loose conductors assumed to be de-energized. The remaining 18 incidents were evenly split between damaged current-carrying equipment and Lock-Out Tag-Out (LOTO) violations.

While none of the incidents resulted in serious injuries, DOE concluded that most were caused by the way work is reviewed, planned, and performed -- not because of missing programs or procedures. The solution is to correctly implement the existing electrical safety controls, such as knowledge of wiring locations, verification that circuits are de-energized, LOTO, and the use of work permits and PPE.

Monday, April 30

- Minestrone
- Chicken & mushroom cheese steak
- Baked chicken enchiladas
- Pot roast
- Garden turkey
- Assorted sliced pizza
- Szechwan green bean w/ chicken

[Wilson Hall Cafe Menu](#)

Chez Leon**Wednesday, May 2****Lunch**

- Calzone w/ sausage
- Roasted red peppers and 3 cheeses
- Romaine w/ cherry tomatoes & red onion
- Mocha cake

Thursday, May 3

- Tortilla chicken soup
- Halibut Veracruz
- Chipotle mashed potatoes
- Vegetable of the season
- Profiteroles stuffed w/ fruit

[Chez Leon Menu](#)

Call x4598 to make your reservation.

Archives**[Fermilab Today](#)****[Result of the Week](#)****[Safety Tip of the Week](#)****[ILC NewsLine](#)****Info**

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today@fnal.gov

the early universe -- inserted ripples into the cosmic microwave background radiation left over from the Big Bang. In 2005, Sloan found matching ripples in the distribution of matter over a large sample of galaxies. Finding the same ripples in both the early universe and in today's galaxy distribution confirmed predictions that gravity was responsible for forming the universe's current structures. The ripples also provided a way to measure the properties of dark matter and dark energy. Estrada has recently found evidence of these ripples, called "baryon acoustic oscillations," in a different sample of Sloan galaxy clusters.

The group also discusses recent work in weak lensing. "Weak lensing occurs when galaxies are just a little bit distorted, and the way you measure it is by looking at the shapes of lots of galaxies," said Lin. Postdoc Jeff Kubo is looking at weak lensing in the Coma Cluster, one of the richest known galaxy clusters covering a large enough sky area that the Sloan Survey is needed to image it all for a weak lensing study. Weak lensing can be used to "weigh" the Coma Cluster and determine what percentage is made of dark matter. "Since its gravity distorting the light, you can calculate the overall mass of the cluster by looking at the amount of distortion," said Lin. "The stuff that adds mass, but that you don't see, is dark matter."

--Siri Steiner

In the News***Scientific American,*
April 27, 2007****Magnet Trouble Likely to Complicate Start of Large Hadron Collider**

Repairs may preclude a test run before the particle smasher starts tackling the Higgs boson

Researchers building the world's next top particle accelerator, the Large Hadron Collider (LHC) that straddles the Franco-Swiss border, may not get a chance to work out the bugs before they fire up the machine in earnest.

The experiment is still on track to begin hunting for the long sought Higgs boson next March, says LHC project leader Lyn Evans of the European Organization for Nuclear Research (CERN). But a crucial upgrade of 16 superconducting magnets around the accelerator will likely prevent a full test run planned for this December, he says, meaning

See ES&H Manual [Chapters 5040-5048](#) for detailed guidance on electrical safety for Fermilab operations.

[Safety Tip of the Week Archive](#)**Accelerator Update****April 25 - 27**

- Three stores provided 35 hours and 13 minutes of luminosity
- Pbar's Lithium Lens power supply over heats
- Stuck LCW valve on KRF3 halts beam
- Store 5376 aborted

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements**Pine Street entrance closing extended:
Use Wilson Street entrance**

Due to repaving operations, both the inbound and outbound lanes of Fermilab's Pine Street entrance will continue to be closed through Tuesday, May 1. Each day the Pine Street entrance will be closed at 6 a.m. and will reopen by 6 p.m. The Wilson Street entrance will be open between 6 a.m. and 6 p.m. Motorists on outbound Pine street should be cautious of rough uneven surfaces, bumps, water on road and the lack of pavement markings. The schedule is dependent on the weather. *Fermilab Today* will provide updates.

Scottish Country Dancing Tuesday

Scottish Country Dancing will meet Tuesday, May 1, at Kuhn Barn on the Fermilab site. Instruction begins at 7:30 p.m. and newcomers are always welcome. Most dances are fully taught and walked through, and you do not need to come with a partner. For more information call 630-840-8194 or 630-584-0825 or [email](#).

Good luck, Brandi!

Brandi Myers of Human Resource Services (WDRS) is leaving. Please join us in wishing her goodbye and good luck on Wednesday, May 2, 2007 from 3:15 to 4:30 p.m.

Professional Development classes

New classes are always being added to the professional development schedule. For the most up-to-date course offerings, visit the professional development [web site](#).

Play Ultimate Frisbee

Ultimate Frisbee games take place on the village soccer field on Monday and

researchers will have to troubleshoot glitches on the fly. Under that scenario, "if we have any problems, we will have to stop and fix them," he says.

[Read more](#)

Wednesdays starting at 5 pm. If interested in playing or learning to play, contact Doug Moebs at x4490 or by [email](#) to get on the email list.

[Upcoming Activities](#)